



Fakulta elektrotechnická  
Katedra kybernetiky

# **Social Human-Robot Interaction**

## **Task specification**

### **Subject: Humanoid robots**

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## ■ Task description

Pepper is supposed to be used for the greeting of CTU visitors. You can choose a different topic if you want, just keep Pepper friendly, kind and helpful.

Your task is to create your own timeline supporting a dialogue for the robot:

- REQ00** Create a movement timeline for the robot while it is asking a person a question.
- REQ01** Implement the movement and also the accompanying dialogue (use the dialog tools for that).
- REQ02** The movement duration should be at least 5 s long, but not longer than 60 s (default frame rate of 25 FPS assumed, but if needed you can change it). The greeting message should consist of at least 40 words, but not more than 60 words.
- REQ03** The gestures should be connected to the presented text/speech.
- REQ04** Explain in a separate report what makes the created behaviours human-like or what diminishes their human-likeness.
- REQ05** Discuss the human-likeness on your own timeline/movement but also on examples from the Pepper pre-programmed behaviours.
- REQ06** The code is assumed to run **without** the autonomous life mode turned on.

## ■ Evaluation criteria

You are expected to submit a Choregraphe project that contains the robot interaction during dialogue and a report containing your evaluation of the human-like aspects of the interaction.

### Choregraphe project [total 7 pts]

#### ■ 1. Working: Submit working Choregraphe code [1 pt]

The code will be launched as is. If it fails to run, this point is lost. If the change/error can be easily altered, then you still might get some points in the later parts. However, it is quite probable that code that cannot be launched as is won't get any points. If you submit also a video and the code does not work due to the difference in OS or software, then the video is proof enough of your code working. Your Choregraphe project will still be checked for its content.

#### ■ 2. Major movements: The code/timeline uses major movements to perform the robot gestures [2 pts]

We consider general movements as gestures etc. major movements (e.g., move arm in front, point towards something). They are the core of your welcoming message. You can think of them as the movement that is the goal of a given action/task. So even bowing, waving etc. are basically major movements. The major movement has to be your own movement. Do NOT use any of the preprogrammed movements in Choregraphe.

#### ■ 3. Minor movements: The code/timeline uses minor movements to add human-likeness to the movements [2 pts]

Minor movements are any slight and small movements that the robot does in order to give the impression of being human. Therefore slight tilts during bowing, flashing LEDs in eyes to mimic blinking or similar are considered minor movements. For full points, all major movements should be "humanised", i.e. smaller movements or changes are added to make the movement look more human.

■ **4. Dialogue: The project contains a dialogue combined with the gestures [2 pts]**

You should use the Choregraphe dialog writing tool for creating the welcoming dialogue. You can look at the Dialog available in Choregraphe and its ExampleDialog. Do not forget to combine the programmed gestures with the words/text in the relevant .top file, for example by using `wait(YOUR_ANIMATION)`.

Follow the limit for the dialogue length from the requirements.

**Report [total 5 pts]**

■ **1. Clarity: Submitted well-written and clear PDF for the discussion. [1 pt]**

The report and its argumentation need to be clear and easy to understand by the evaluator. It is fine to write the report in Czech if that suits you better.

■ **2. Identification: The report clearly identifies and discusses the preprogrammed movements. [2 pts]**

We discussed the various movements of the robot during the labs. You should analyse some of the provided default movements in Choregraphe and explain what major/minor movements are being done there.

■ **3. Reasoning: The report properly defends the design decisions for the submitted Choregraphe project. [2 pts]**

Based on the previous analysis and your own research, defend the final design of your application presented in the Choregraphe project. Therefore, you can, for example, describe why the major movement is appropriate as the gesture accompanying the given message or argue why the minor movements you added make the major gesture more human.

■ **General notes**

Please, submit your solution to BRUTE.

Upload a ZIP with your Choregraphe project. There is no Smoke test for Choregraphe projects, so the application will be evaluated manually.

You can upload in your ZIP file also a video of your demo working to make sure that differences in OS/computer won't impede the evaluation.

There is a soft and hard deadline. Solutions uploaded after the soft deadline will gain **only half** of the points. Solutions uploaded after the hard deadline will gain **no points**.